

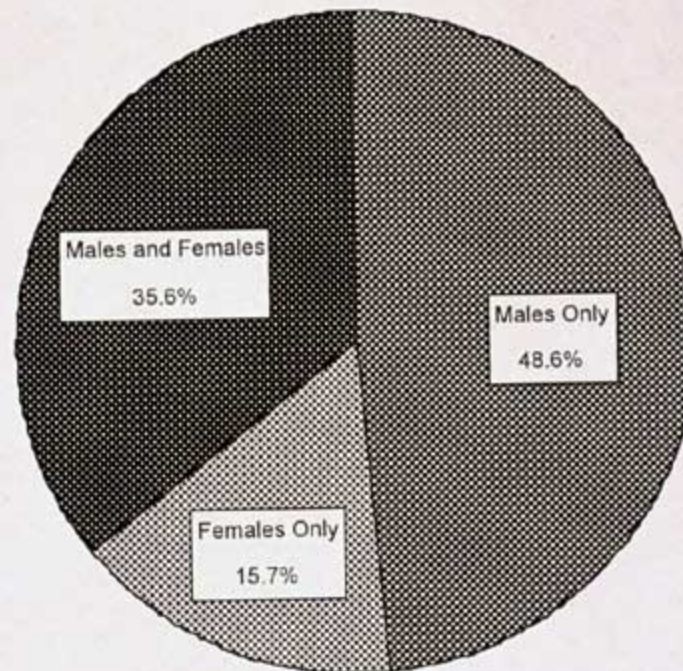
Fight-or-Flight versus Tend-and-Befriend: The Significance of Gender Differences in Stress Responses

University of California, Los Angeles

Shelley E. Taylor, Ph.D.
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GENDER COMPOSITION OF STRESS STUDIES

- ♦ 77 studies included both males and females
- ♦ 105 studies included males only
- ♦ 34 studies included females only



Characteristics of Current Research on Stress

- Both animal and human literature based very disproportionately on males
- Emphasis primarily on catecholamines and corresponding fight-or-flight response
- Draws on acute stress challenge studies (with attendant blind spots)

Fight-or-Flight

- Biological Component: SNS and HPA axis
(Same for Both Sexes)
- Behavioral: Aggression or
Withdrawal/Substance Abuse
(Characteristic of Men More Than
Women's Stress Responses)

Females and Fight

Fight

- Theoretically untenable (due to need to care for offspring)
- Biologically untenable (androgens organize and activate much physical aggression)
- Empirically unsubstantiated (female attack and defense limited in scope)

Females and Flight

Flight

- Theoretically untenable (due to risk to offspring)
- Biologically questionable (evidence of downregulation of females' responses to stress)
- Empirical (evidence suggests behavioral alternatives)

Tend and Befriend

- Tending -- Caring for offspring; soothing them in times of stress; reduces biological stress responses in both mother and offspring.
- Befriending -- Turning to social group, especially other females, for help, protection, social support.



What Do Females Do in Response to Stress?

Tending

- Animal evidence of maternal tending under stress (e.g. Meaney)
- Sex difference in responses to children by parents under stress
- Female physiological and neuroendocrine responses to stress appear to be downregulated (estrogen?, oxytocin?, synergistic combination of both?)
- Oxytocin promotes prosocial activity such as licking and grooming of offspring

Tending Response: Biological Underpinnings

- OT associated with reduced stress in female animals (6 studies; see, for example, Nelson & Panksepp, 1998).
- OT associated with enhanced maternal behavior (5 studies; see, for example, Kendrick & Keverne, 1989).
- OT antagonist can block maternal behavior (e.g., Witt & Insel, 1991).
- EOP blocking agent reduces maternal behavior in monkeys and in sheep (e.g., Kalin, Shelton, & Lynn, 1995).

What Do Females Do in Response to Stress? (continued)

Befriending

- Humans – evidence from:
 - informal social groups
 - studies of social support
 - experimental research on affiliation under stress
- Animal studies (rats, prairie voles) – turn to other females
- Social response to stress mediated by oxytocin and endogenous opioid peptides

Social Support Later in Life

	Men	Women
Spouse	6.96	6.55
Children	6.76	7.27
Friends/Relatives	6.44	7.21

Gurung, Taylor, & Seeman. (in press). *Psychology of Aging*.

Befriending Response: Biological Underpinnings

- Exogenous administration of OT increases affiliative behavior and grooming (e.g., Witt, Winslow, & Insel, 1992).
- EOP blocking agents associated with reduced social activity and grooming (e.g., Martel, Nevison, Rayment, Simpson, & Keverne, 1993).

Do Men Tend and Befriend?

- Answer is a qualified yes
 - 1) Evidence of paternal care-giving and male collective activity in response to stress in primates and humans
 - 2) Potential role for vasopressin in deriving biological model of men's responses to stress.

Gender Differences in Social Support:

1. Social support is especially sought by women in response to stress, more so than is true of men.
2. Social support is especially sought from women.
3. Social support is also more likely to be provided by women than by men in times of stress.
4. Social support has stronger effects on women's health outcomes than on men's.

What Do We Know About Sex Differences in “Social Support”? (Animal Studies)

1. Female rats live longer when housed with other female rats than when housed alone; male rats die sooner if housed with other males than if housed alone.
2. Crowding (with other males) is a source of stress for male animals that leads to aggression; crowding (with other females) is calming for female rats.
3. In prairie voles, males turn to female mate in times of stress; females turn to their female cage mates.

Marriage and Conflict: Clinical Findings

- Men and women in troubled marriages are more likely to have periodontal disease and, in women only, adverse changes in rheumatoid arthritis disease (Kiecolt-Glaser & Newton, 2001)
- In women (only) with marital distress, higher SBP and HR responses to stress (Carels, Sherwood, & Blumenthal)
- Women (only) with cancer who had lower companionship in marriage at greater risk of CA death (Hibbard & Pope, 1993)
- Marital conflict a predictor of disability over 6 years (women only) (Appelberg et al., 1996)

Stress Responses in Married Couples: Some Caveats

- 1) Men report that they get their social support primarily from a partner relative to other sources; women seek and obtain support from a broader array of contacts, especially female friends, and report that they turn to their spouses less than to other sources of social support.
- 2) Men's autonomic arousal shows a marked decline upon returning home after a work day; women's autonomic arousal remains elevated long into the evening – in some studies, decline does not begin until 10 P.M.
- 3) Women show stronger engagement of autonomic and HPA axis responses to marital conflict than men do; men often show no change in heart rate and blood pressure to conflict. Women's responses also last longer.

Caregiver Studies

- Higher EBV antibody titers among Alzheimer's caregivers; lower T cells (Esterling et al., 1996)
- Alterations in natural killer cell response (Esterling et al., 1994)
- Modulation of cytokine-induced natural killer cell activity (Esterling et al., 1996)
- Altered immune response to influenza virus (Kiecolt-Glaser et al., 1996)
- Slower wound healing (Kiecolt-Glaser et al., 1995)

Caregiver Findings: Some Caveats

Caregiver studies often look at:

- Extreme situations, such as labor-intensive caregiving (Alzheimer's, stroke)
- Females; Males more often institutionalize their spouses in need of care
- Elderly caregivers who are at risk for (exacerbation of) immune-related disorders

Implications of Social Support Patterns for Giving Support

1. Giving care to others is likely to bear a curvilinear relationship to immune function and health outcomes.
2. At low levels and extremely high levels, immune function is poorer and health may decline, whereas at moderate levels immune function may look better and health be beneficially affected
3. These effects are likely to be stronger in women than in men.

Conclusions

1. Fight-or-flight more descriptive of men; tend-and-befriend more descriptive of women's stress responses.
2. Men receive (much of) social support from women; women receive (much of) social support from other women.
3. As such, women's ties with other women promote health and longevity.

Conclusions (continued)

- 4. Marriage has substantial health benefits for men and relatively few for women (although both married men and women enjoy mental health benefits).
- Providing support to others is not inherently costly, but can have health and mental health benefits.
- Understanding the benefits of social ties will depend critically on understanding women's social experiences.

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